Water Quality Trends in South Dade

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South Dade Investigation Workshop
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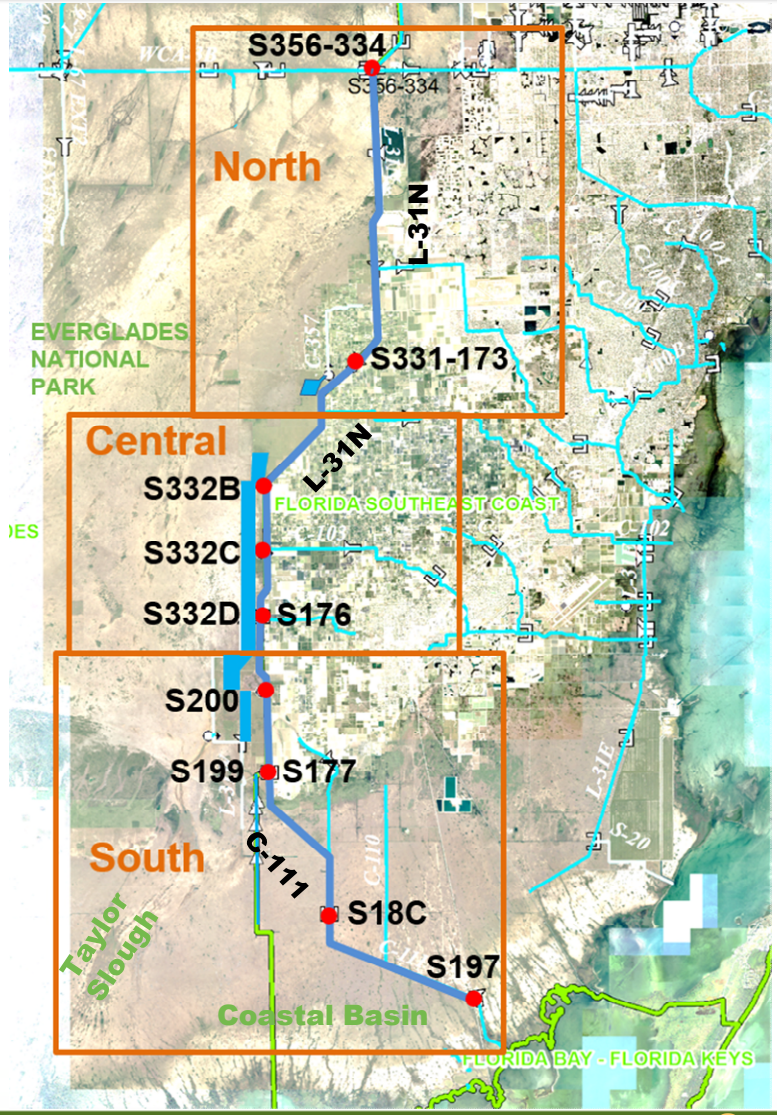
Surface Water Quality Standards for the L-31N and C-111 Canal System

Florida's surface water quality standards

- Published in Chapter 62-302 F.A.C. (based on federal Clean Water Act), and includes:
- Classification: Class III
  - L-31N and C-111 Canals; Everglades National Park
- Outstanding Florida Water Designation (OFW)
  - Everglades National Park
- Criteria (water quality of concern):
  - Total Phosphorus, Mercury and Pesticides

Federal Settlement Agreement, Appendix A – Everglades National Park

- Discharge limit for Total Phosphorus



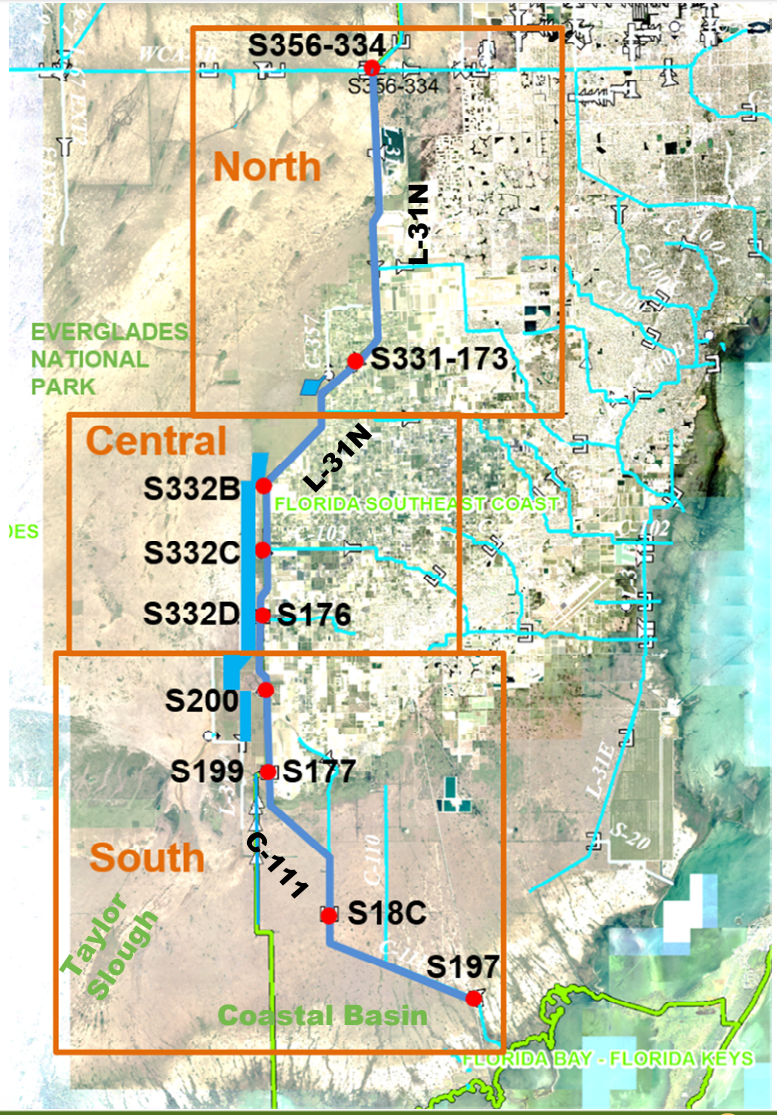
Surface Water Quality Standards for the L-31N and C-111 Canal System

Projects with State Water Quality Standards incorporated as conditions and associated monitoring locations:

- Non-Everglades Construction Project / SFWMD
  - S334, S331-173, S332D, S176, S177, S18C, S197
- C-111 Spreader Canal, Phase I (Western) Project / SFWMD
  - S200, S199
- Cape Sable Seaside Sparrow (CSSS) Emergency Order (EO) for the C-111 / USACE
  - S331-173, S332B, S332C, S332D

Settlement Agreement monitoring locations:

- Appendix A (Taylor Slough/Coastal Basin) S332D, S18C



Surface Water Quality Standards for the L-31N and C-111 Canal System

Total Phosphorus (TP)

- Discharges into the EPA shall be deemed in compliance with state water quality standards upon a demonstration that:
  - Phosphorus levels in the discharges will be at or below the phosphorus criterion of 10 micrograms per liter (µg/L or ppb); or
  - Discharges will not cause or contribute to exceedances of the phosphorus criterion in the receiving waters
- Discharges into Everglades National Park must not result in a violation of the concentration limits established for the Park in Appendix A of the Settlement Agreement
  - Taylor Slough / Coastal Basin limit is 11 µg/L (ppb)

STATUS

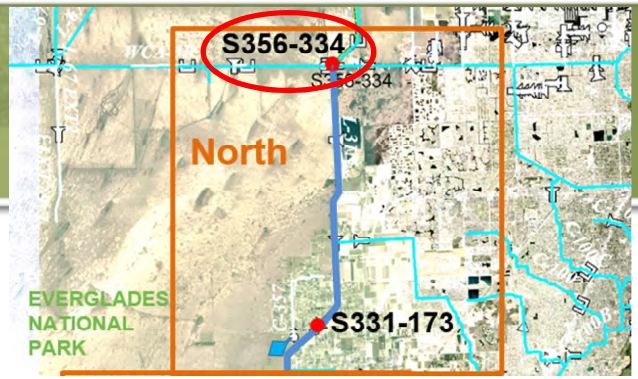
Long-term trends of TP concentrations at ***canal monitoring locations*** *range between*

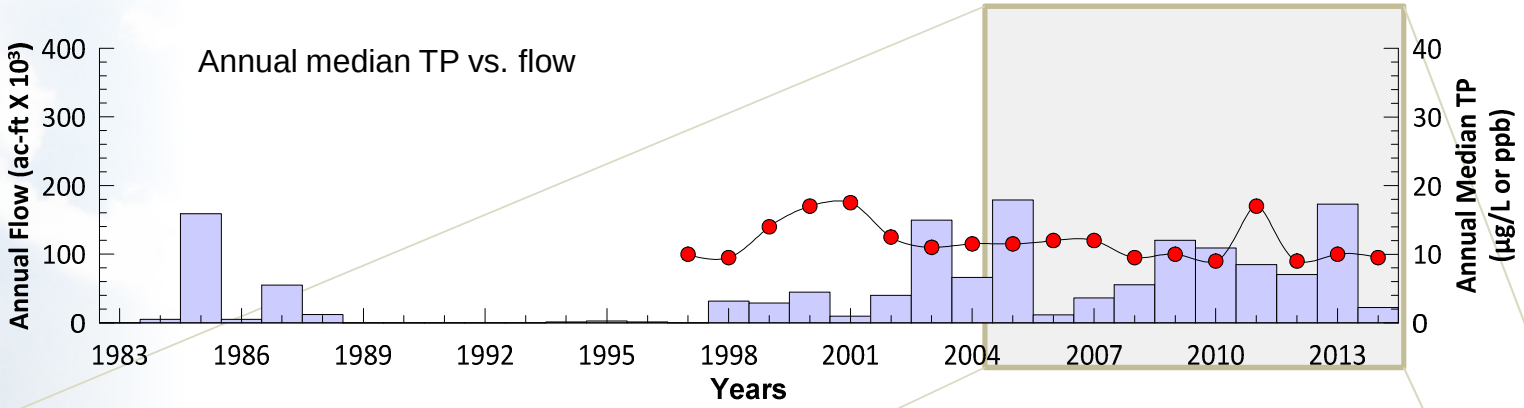
4 – 10 µg/L (ppb)

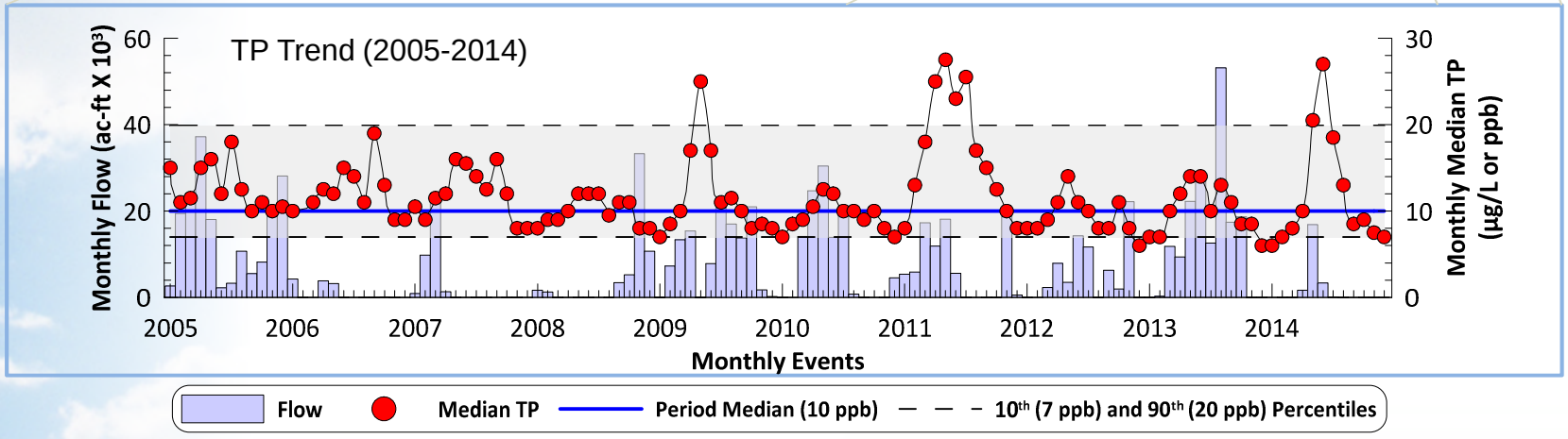
Long-term trends of TP in discharges to Taylor Slough / Coastal Basin ranges between

5 – 6 µg/L (ppb)

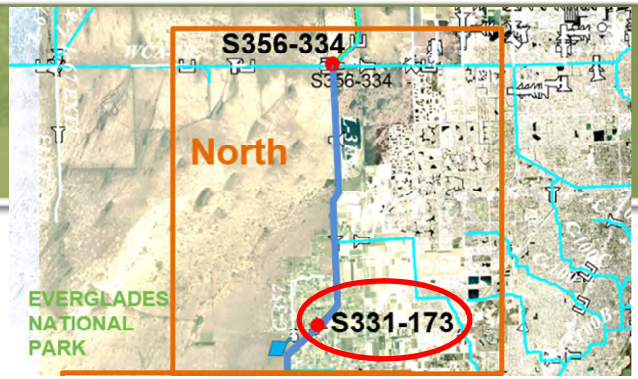
Total Phosphorus Trends: S334

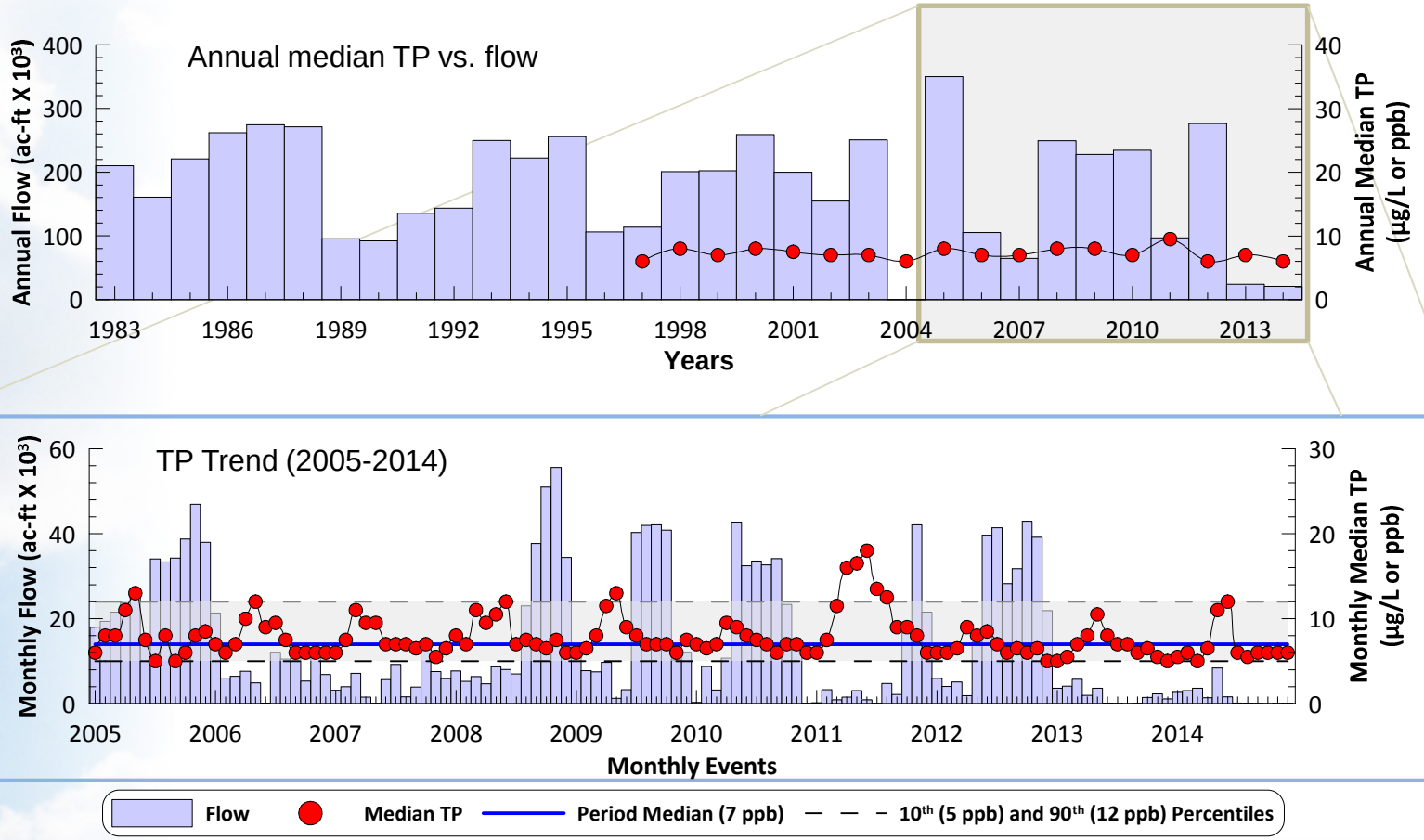




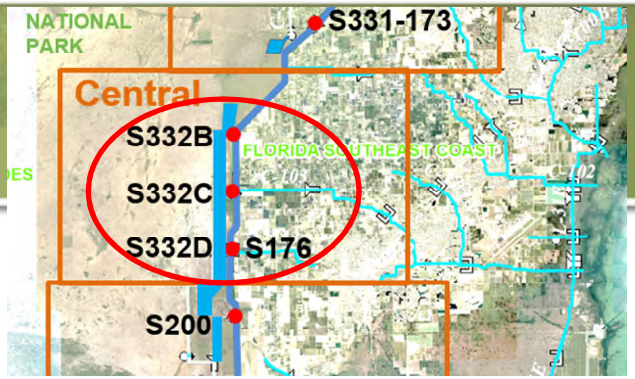


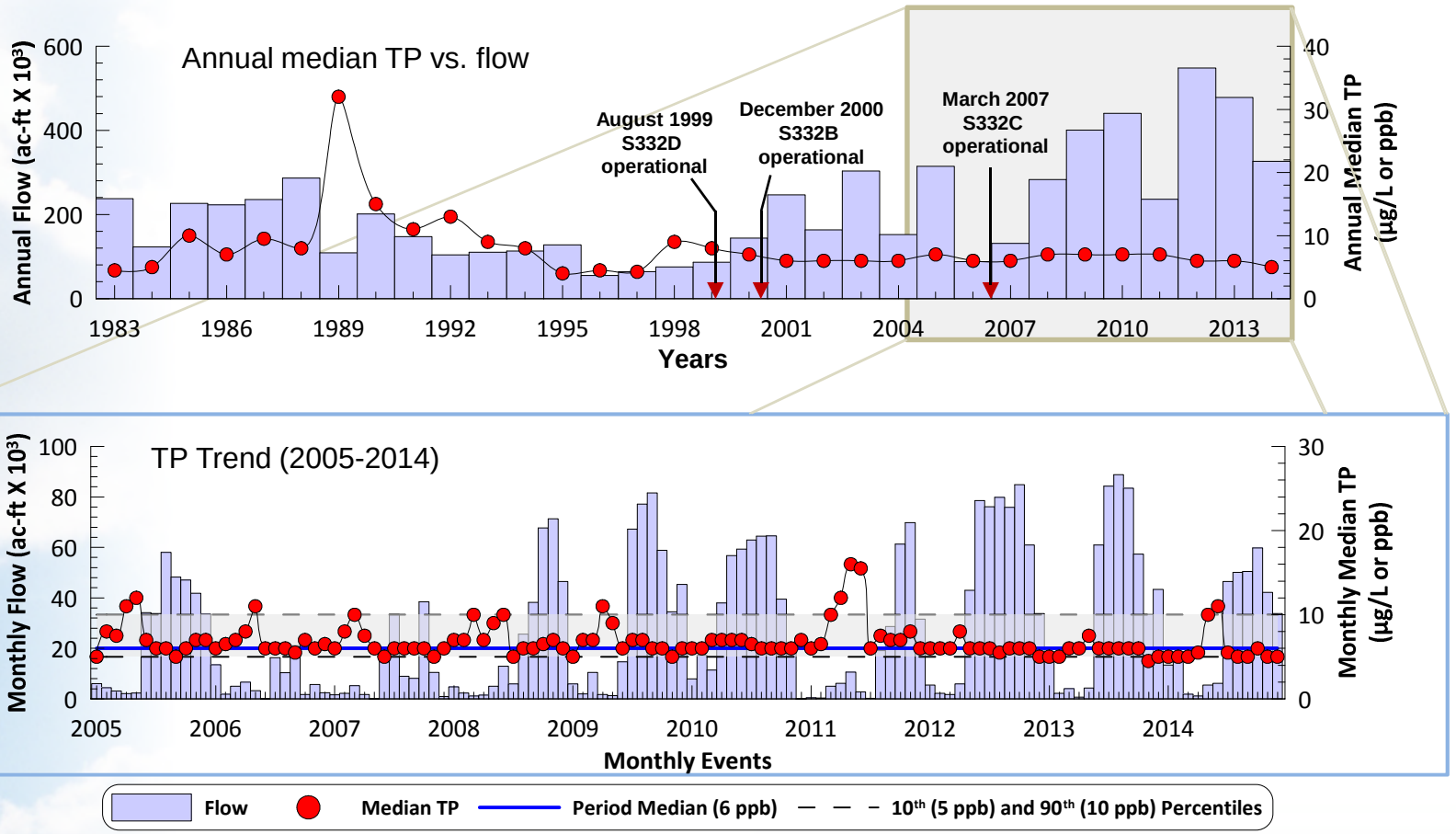
Total Phosphorus Trends: S331-173



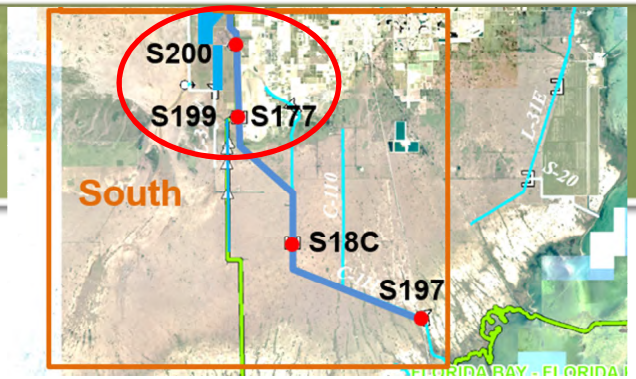


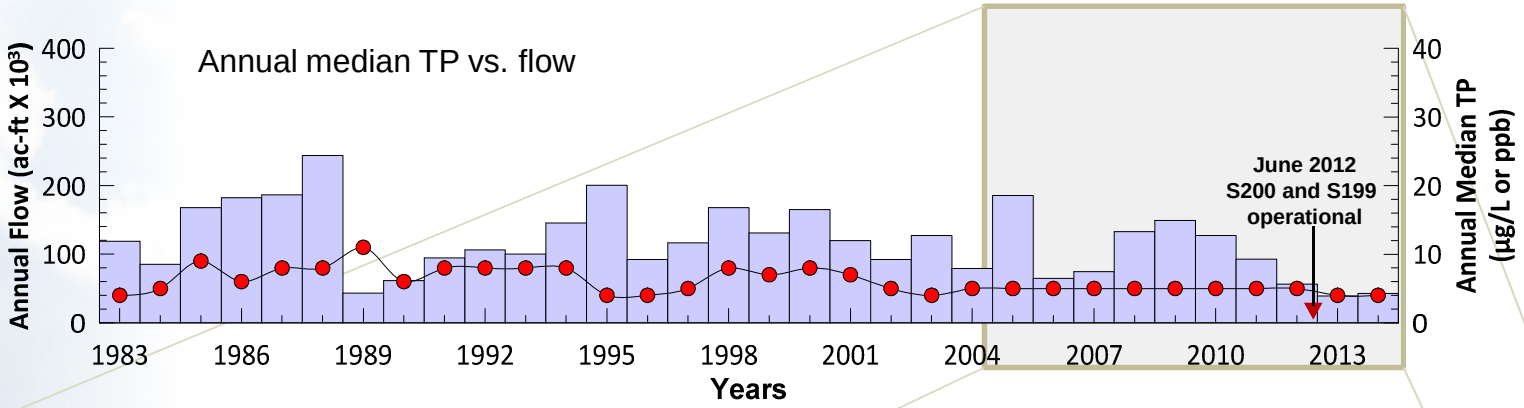
Total Phosphorus Trends: Central - S332B/C/D, S176

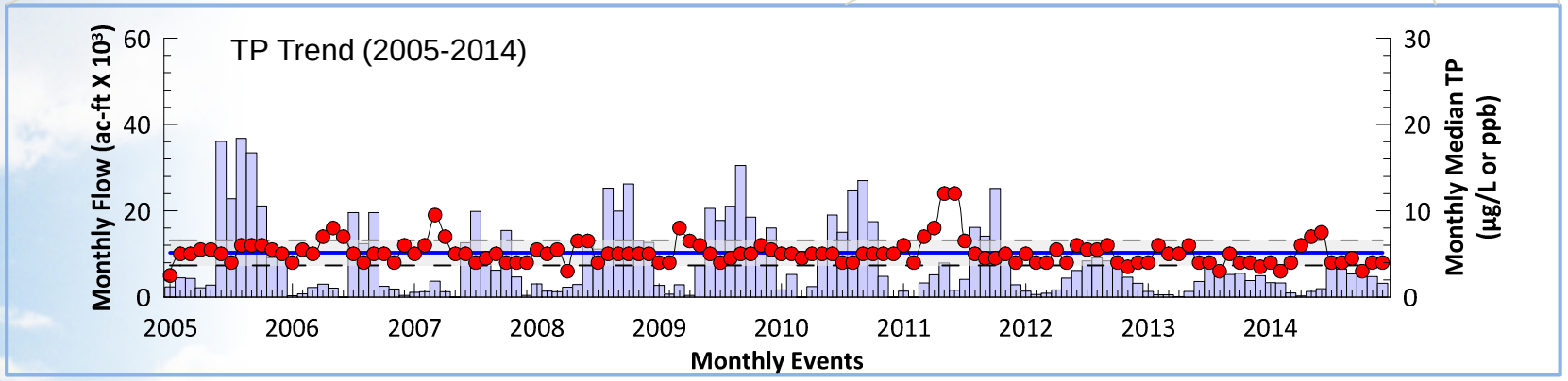




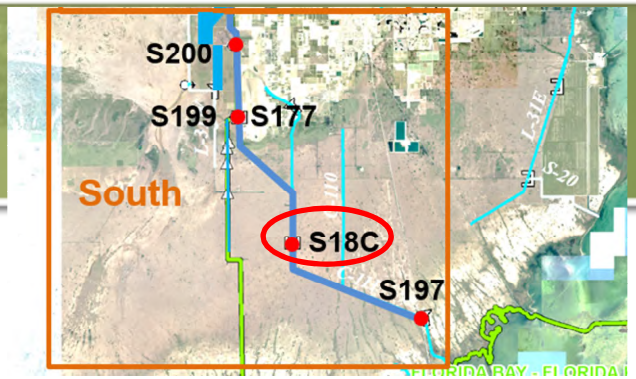
Total Phosphorus Trends: S200, S199, S177

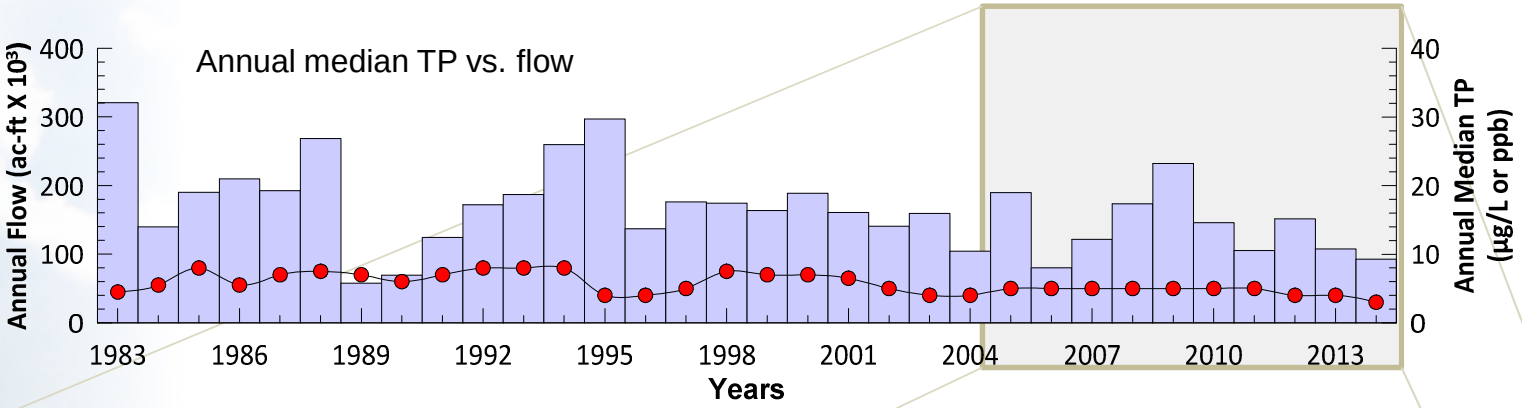


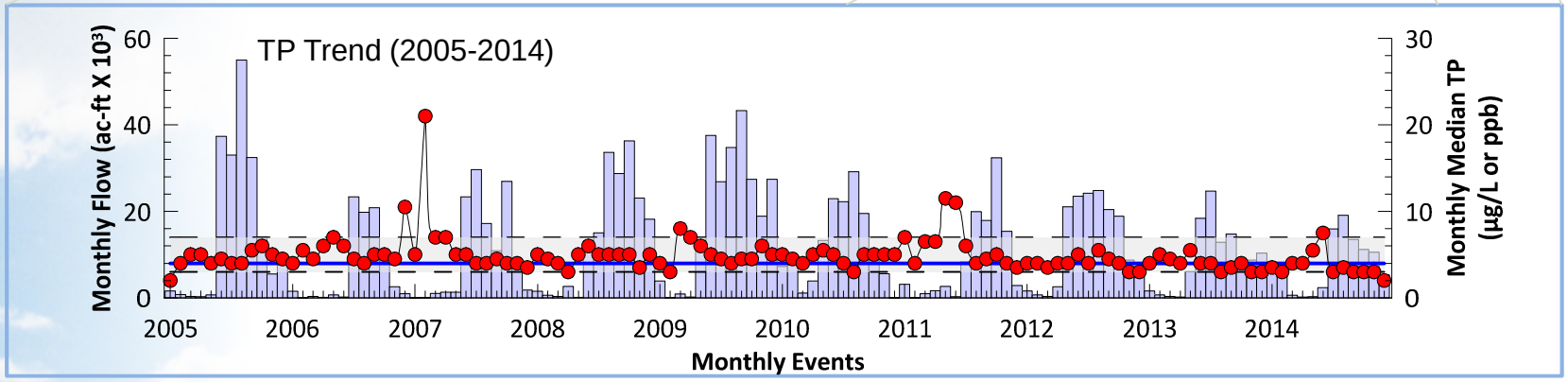




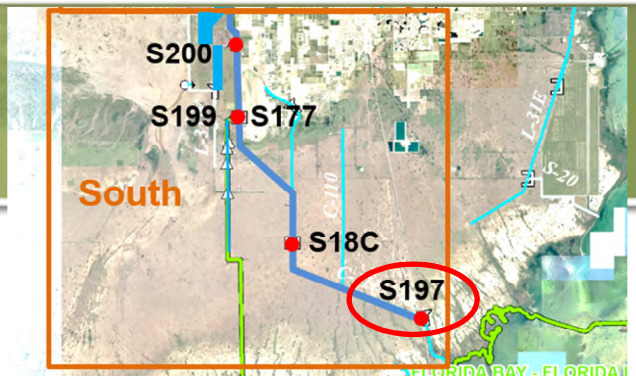
Total Phosphorus Trends: S18C

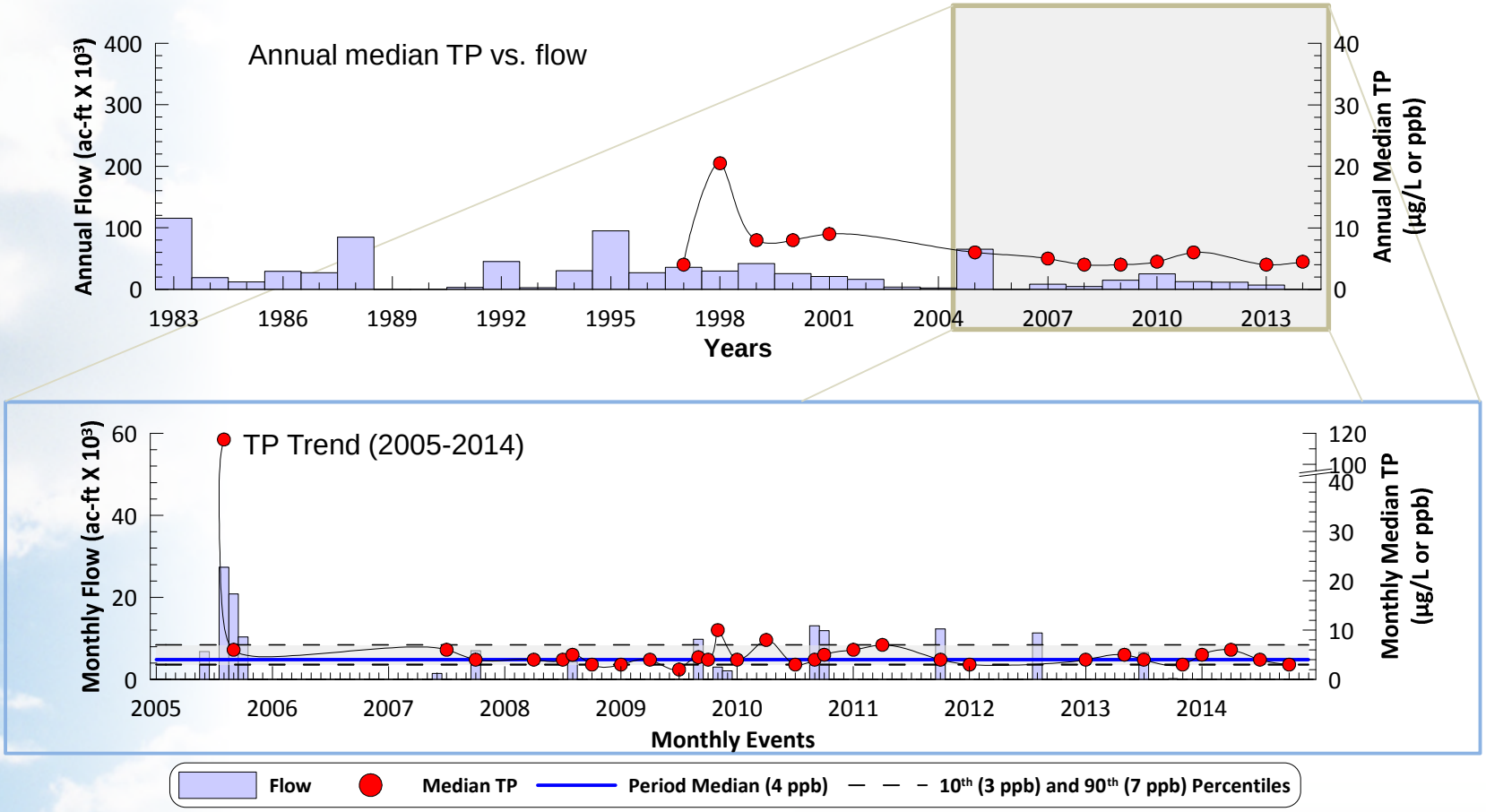




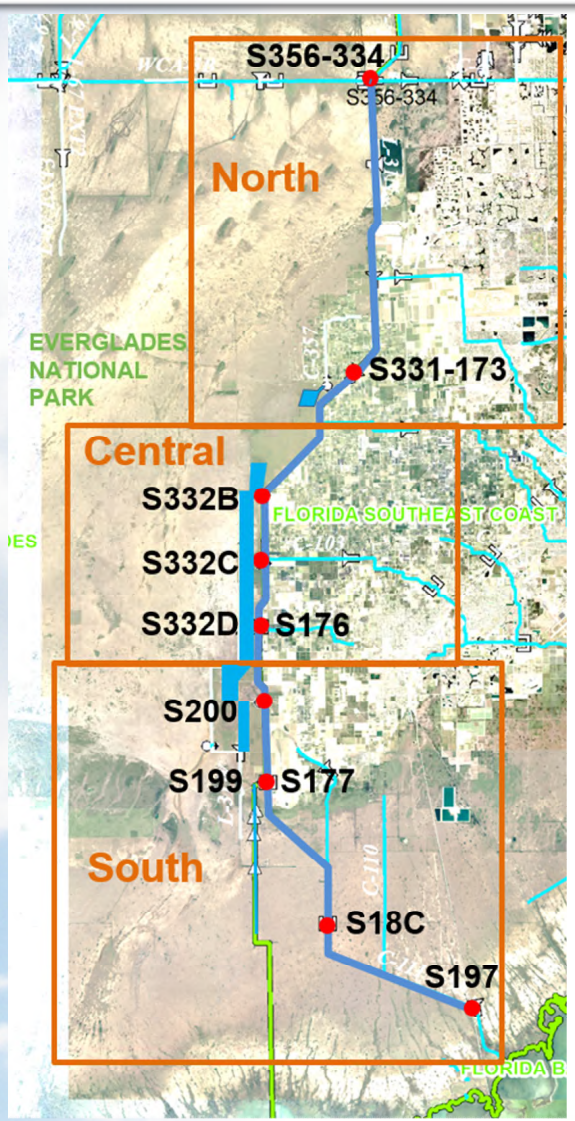


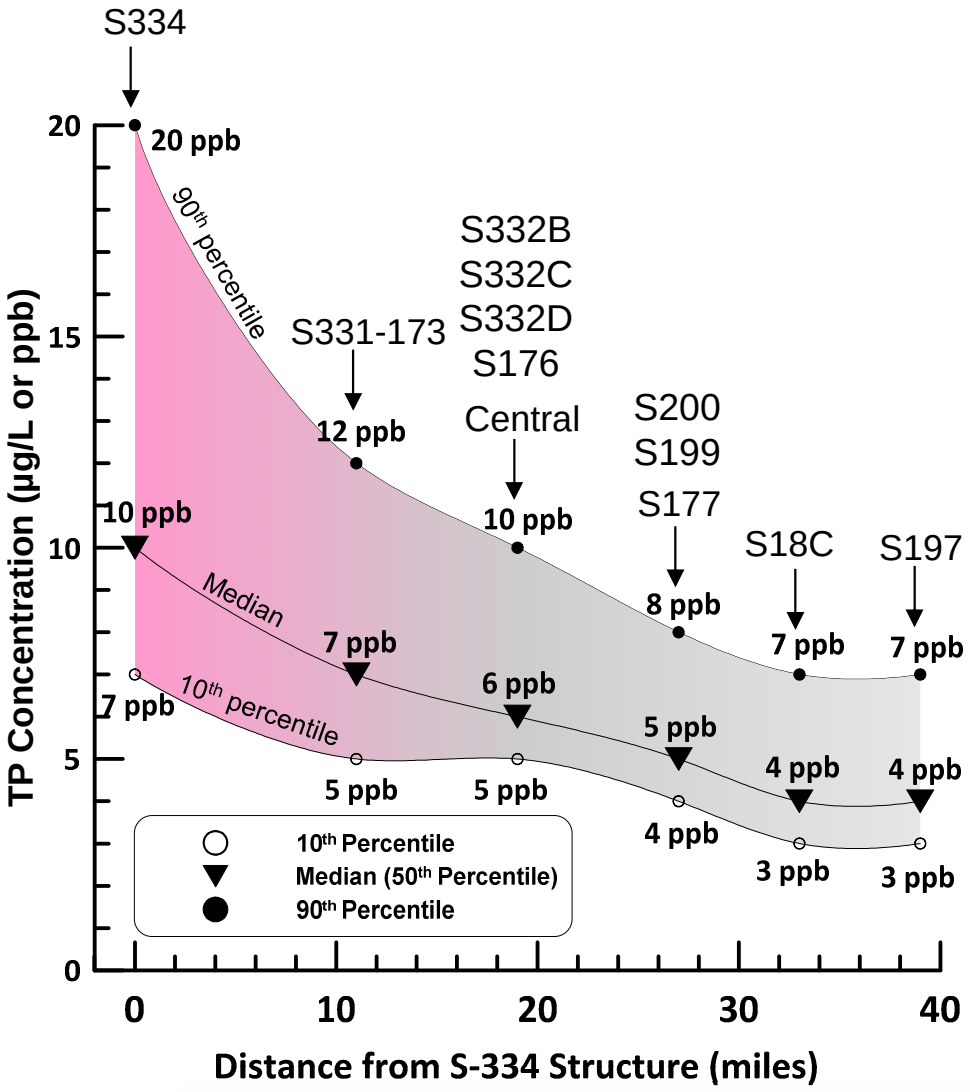
Total Phosphorus Trends: S197





Total Phosphorus Spatial Trend (2005-2014)

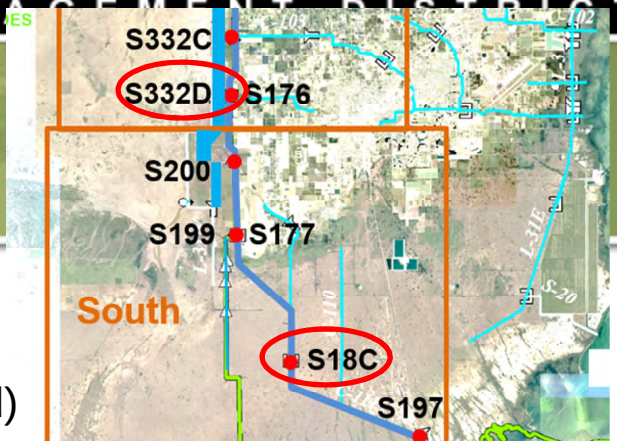


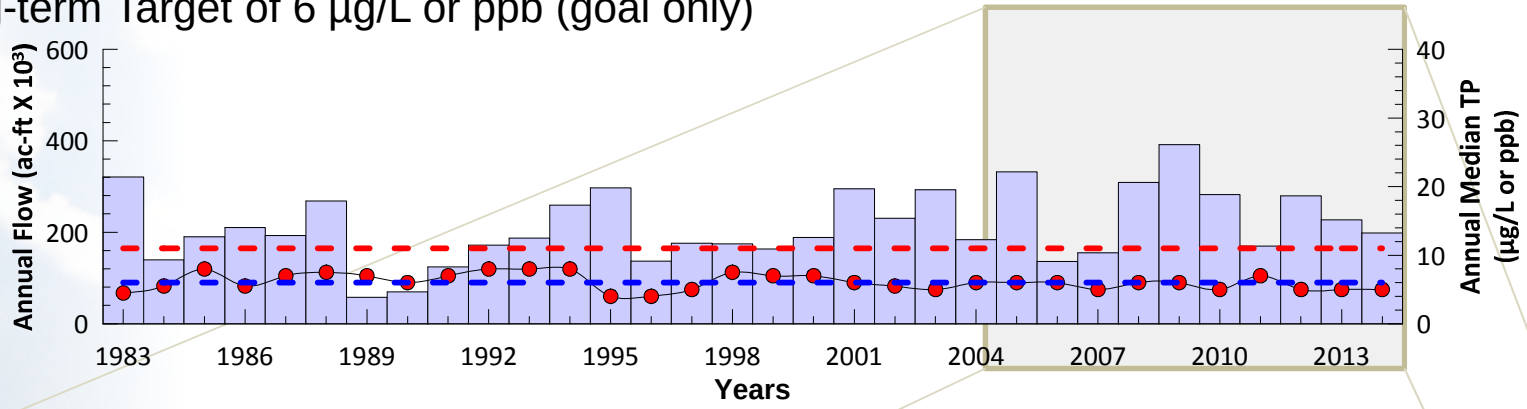


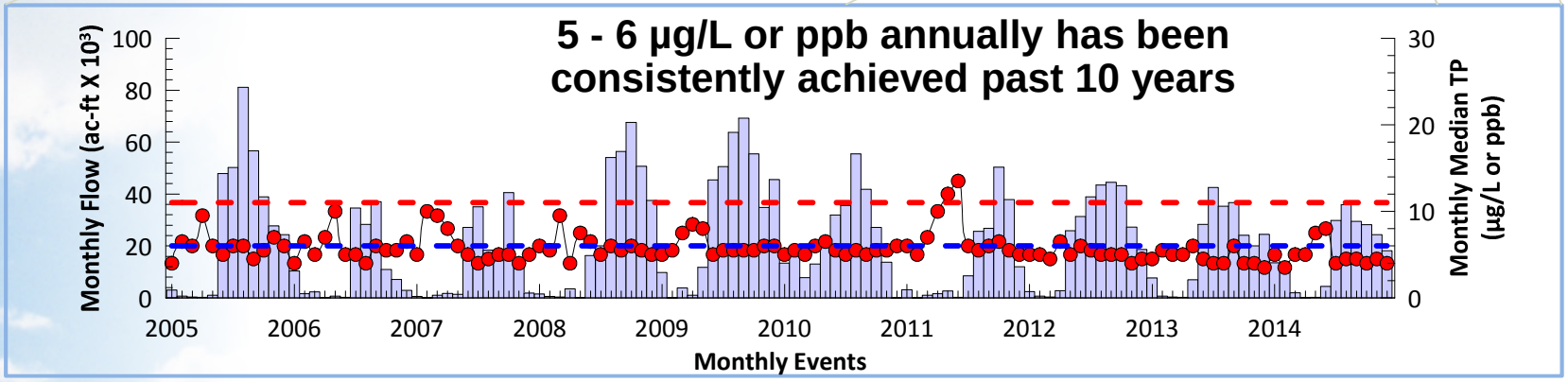
Total Phosphorus Trends: S332D, S18C

Settlement Agreement, Appendix A – Taylor Slough/Coastal Basins

- Long-term Limit of 11 µg/L or ppb (**annually required**)
- Long-term Target of 6 µg/L or ppb (goal only)







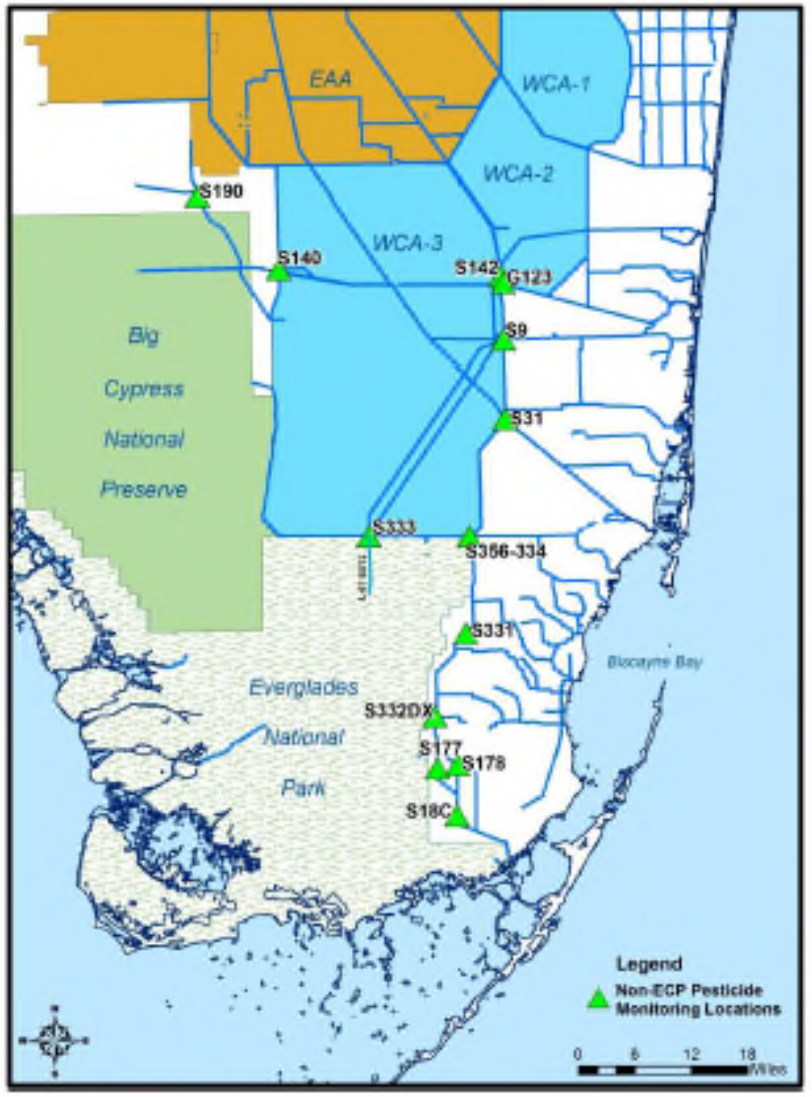
Surface Water Quality Standards for the L-31N and C-111 Canal System

Pesticides

- Evaluate potential impacts on aquatic life resulting from intermittent pesticide exposure (acute/chronic)
- Maximum observed concentration is compared to the criterion published under Section 304 (a) of the Clean Water Act (CWA), and Florida Class III numerical water quality standard

STATUS

Pesticides are occasionally detected, but not at concentrations greater than their respective Class III criteria or toxicity limits



Surface Water Quality Standards for the L-31N and C-111 Canal System

Total Mercury (THg)

- Evaluate impacts to piscivorous avian and mammalian wildlife
- Surface Water
  - THg criteria is 12 nanograms per liter (ng/L) Florida Class III numerical water quality standard
- Fish
  - Evaluate concentrations against the Southern Everglades 75th percentile concentration in milligrams per kilogram (mg/kg) for the period of record; and
  - USEPA Trophic Level III Fish protection criteria of 0.077 mg/kg

STATUS

Total mercury in surface water *has been* ***well below*** *the 12 ng/L criterion at canal monitoring sites*

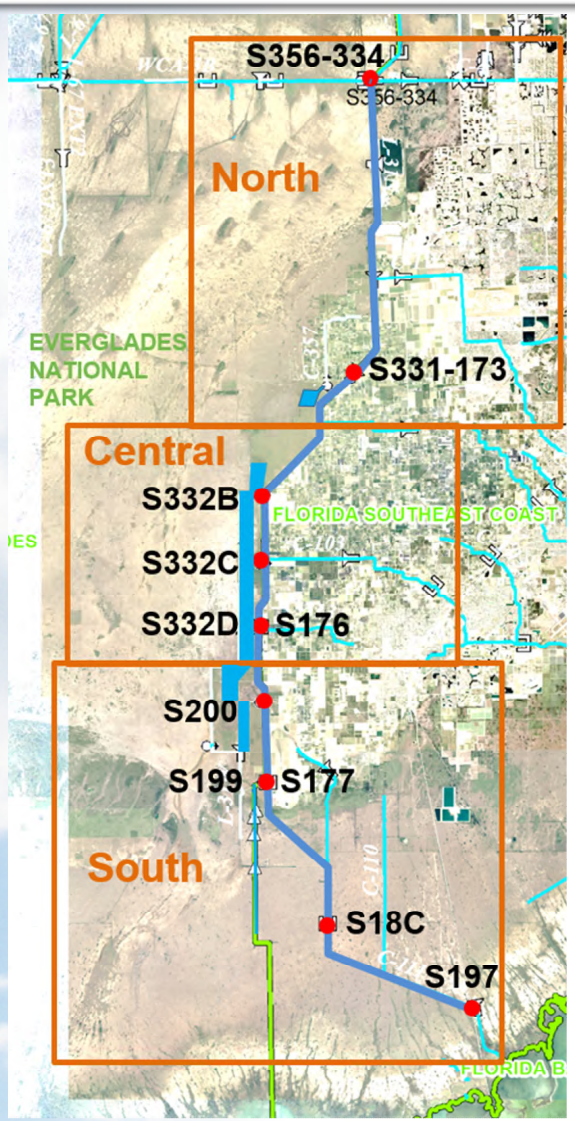
Total mercury levels in fish *measured from monitoring sites have been* ***well below*** *the:*

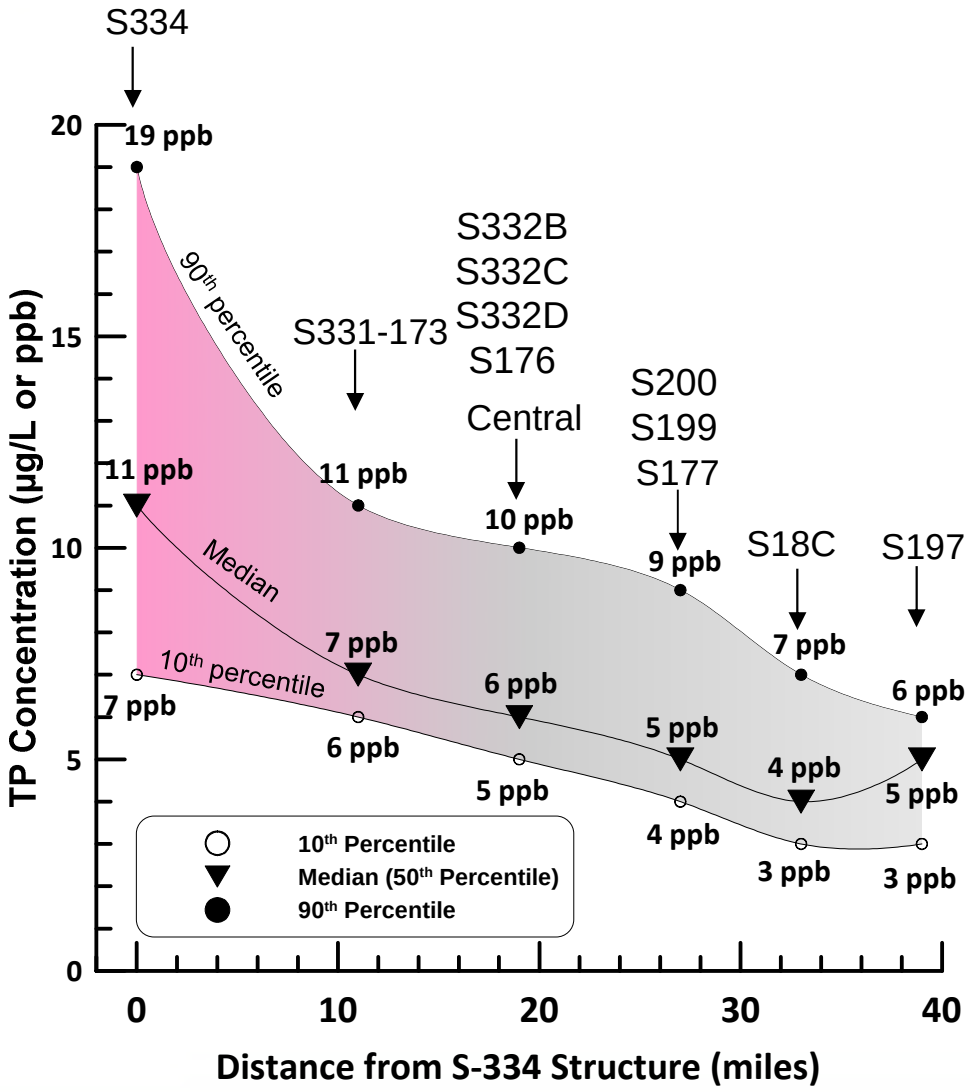
Southern Everglades 75th percentile concentration of 0.08 mg/kg (for the period of record up to 2012),and

USEPA trophic level III fish protection criteria

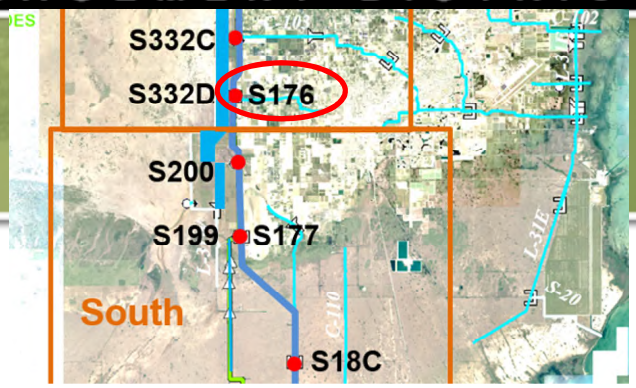
Questions?

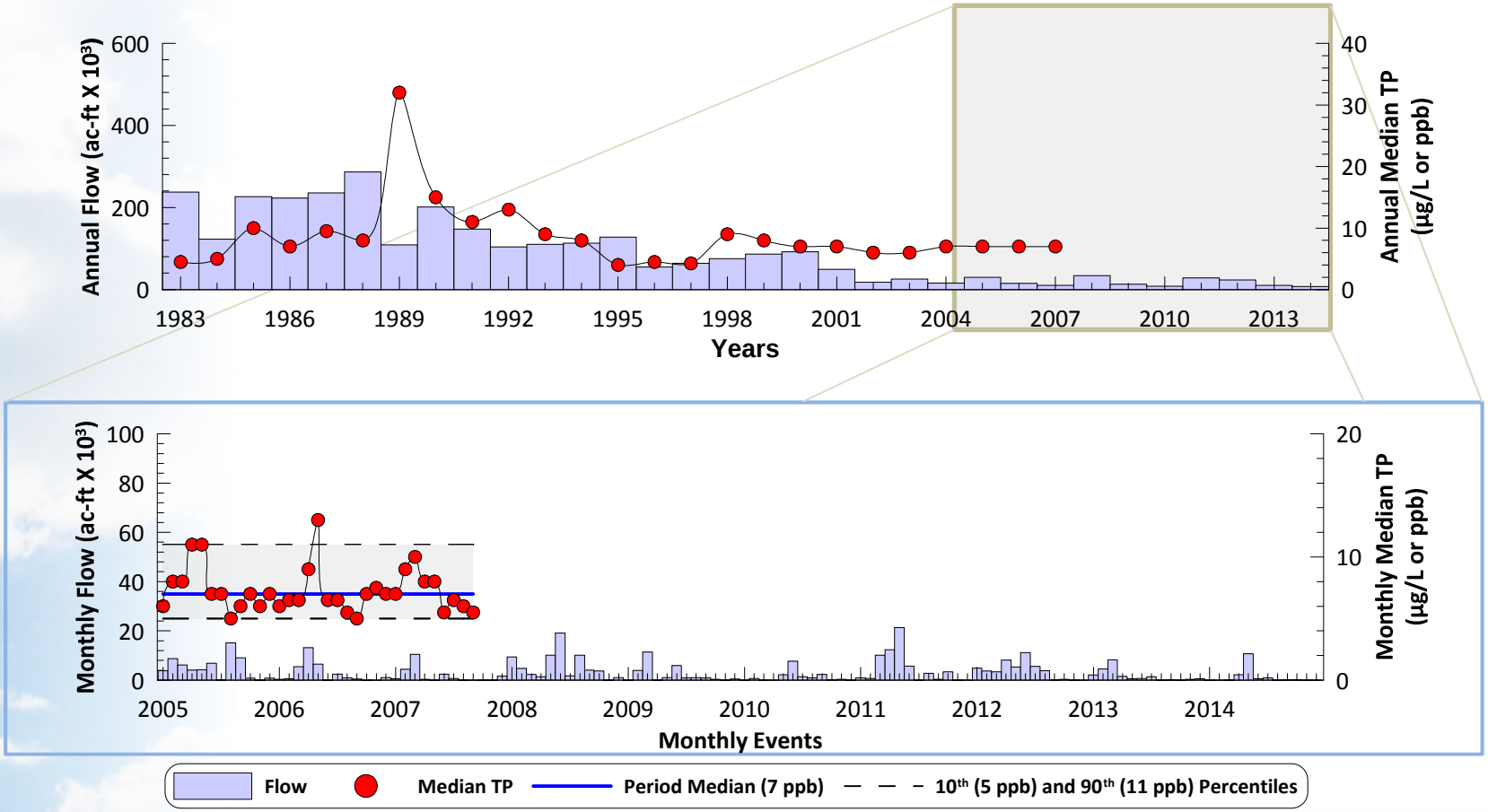
Total Phosphorus Spatial Trend (2010-2014)



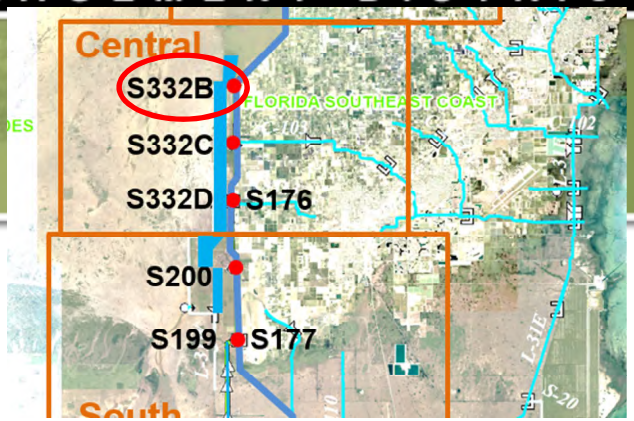


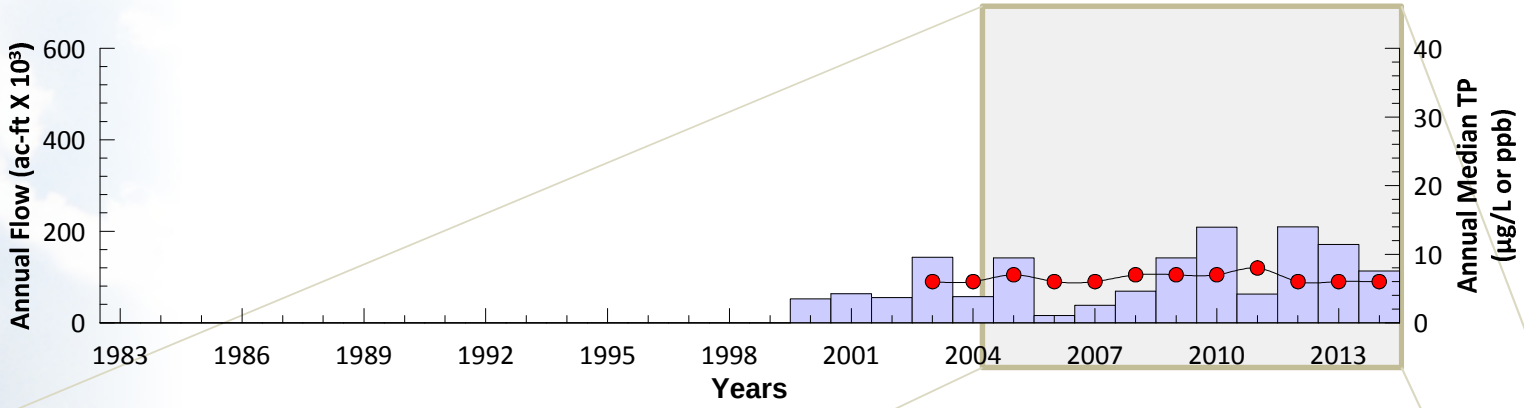
Total Phosphorus Trends: S176

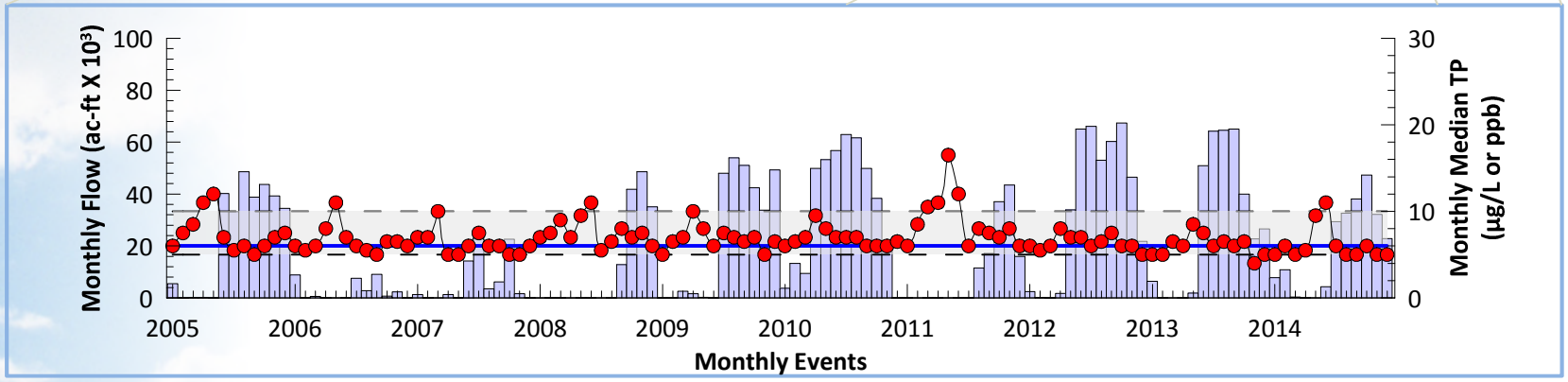




Total Phosphorus Trends: S332B

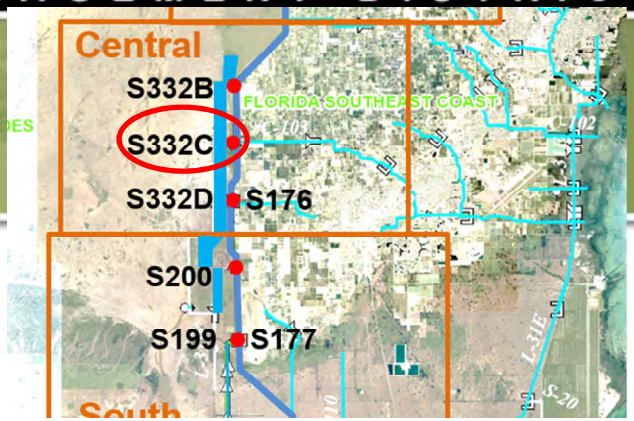


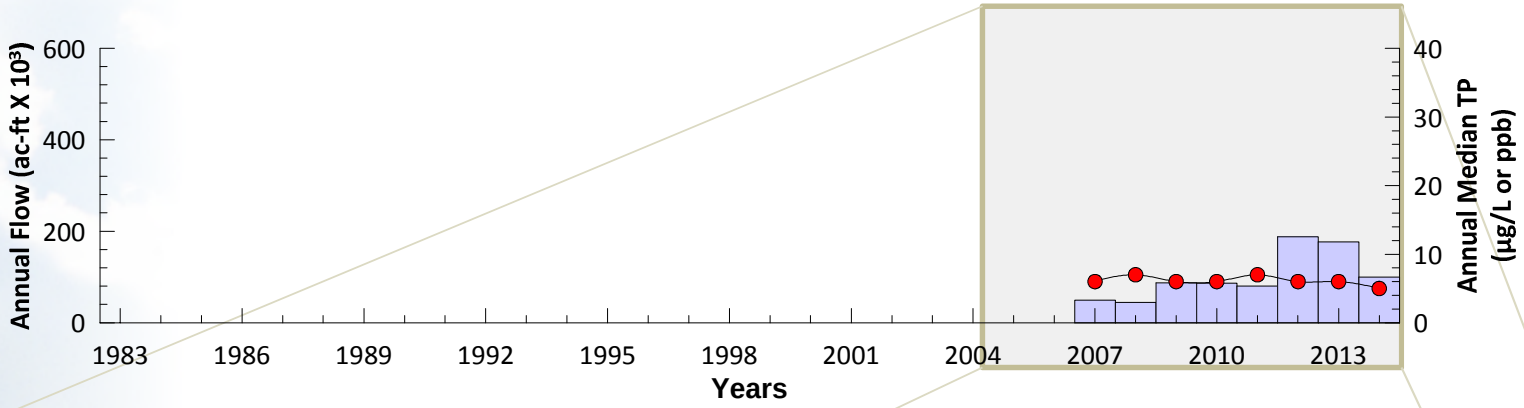


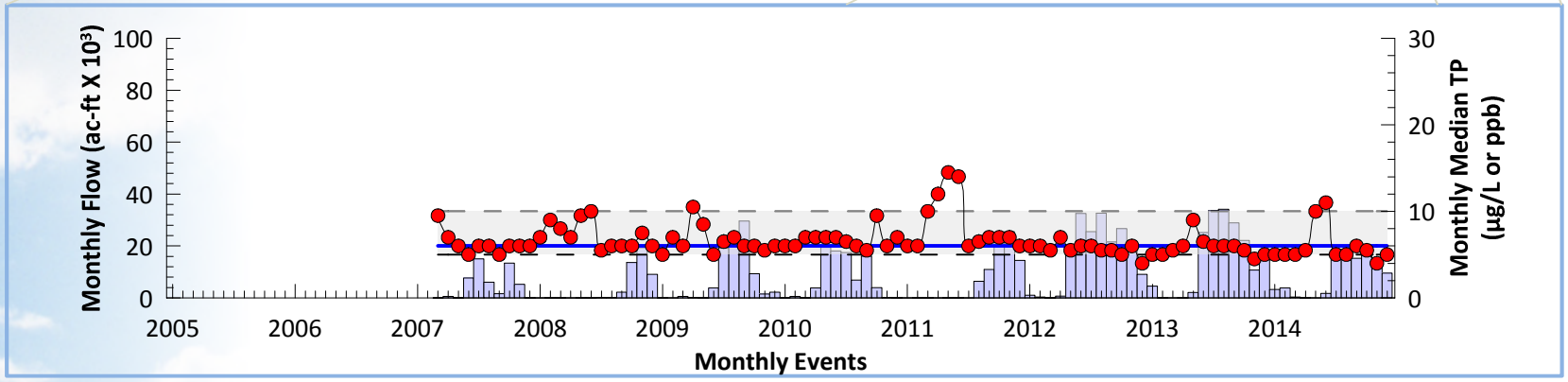


Flow | Median TP | Period Median (6 ppb) | 10th (5 ppb) and 90th (10 ppb) Percentiles

Total Phosphorus Trends: S332C

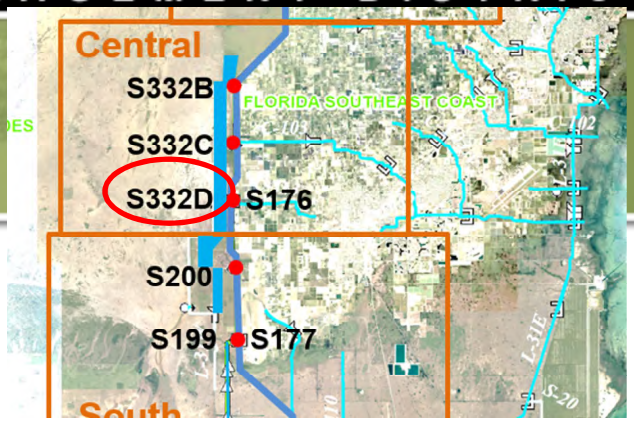


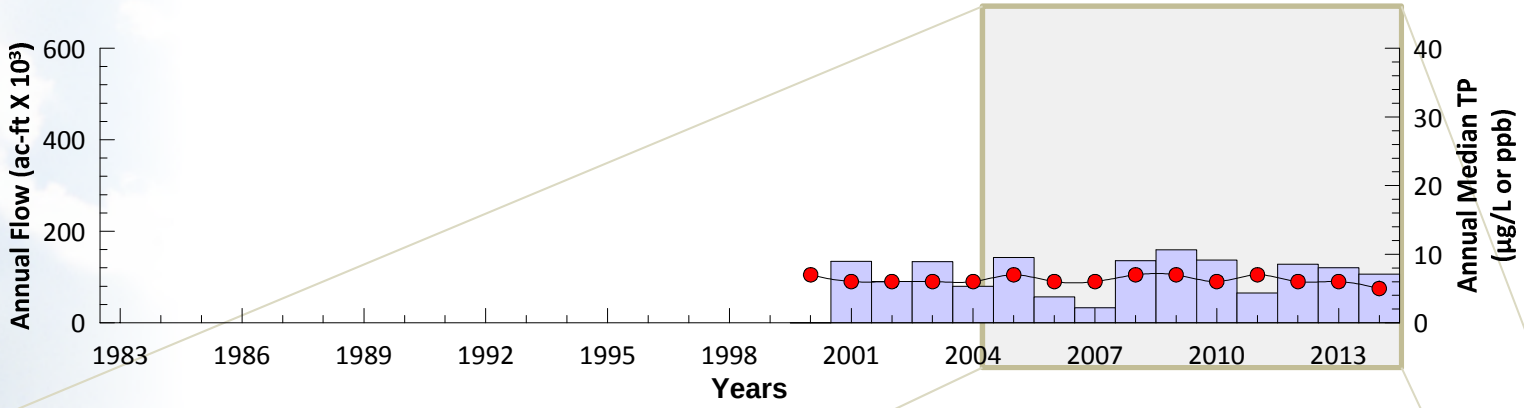


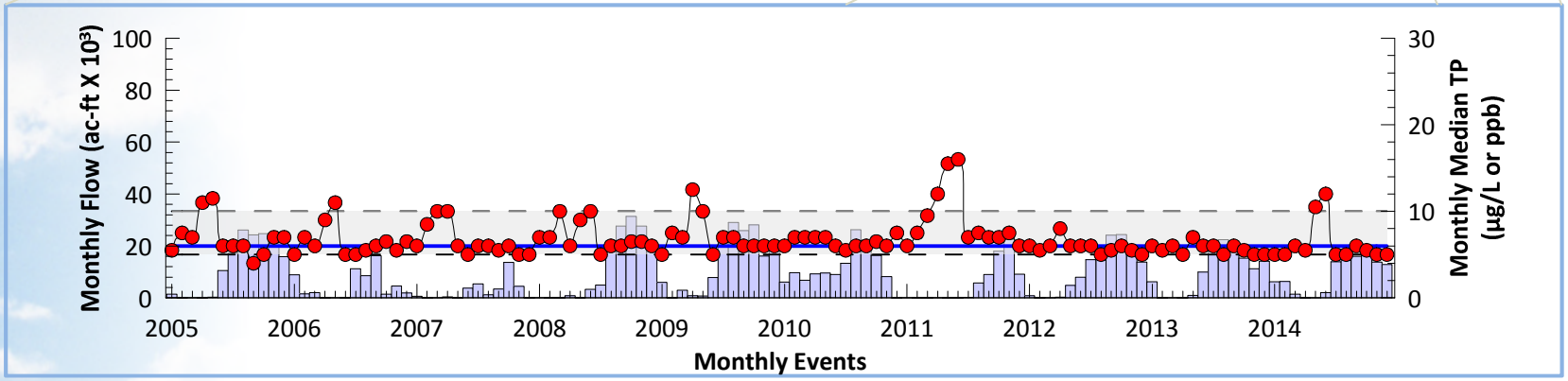


Flow | Median TP | Period Median (6 ppb) | 10th (5 ppb) and 90th (10 ppb) Percentiles

Total Phosphorus Trends: S332D

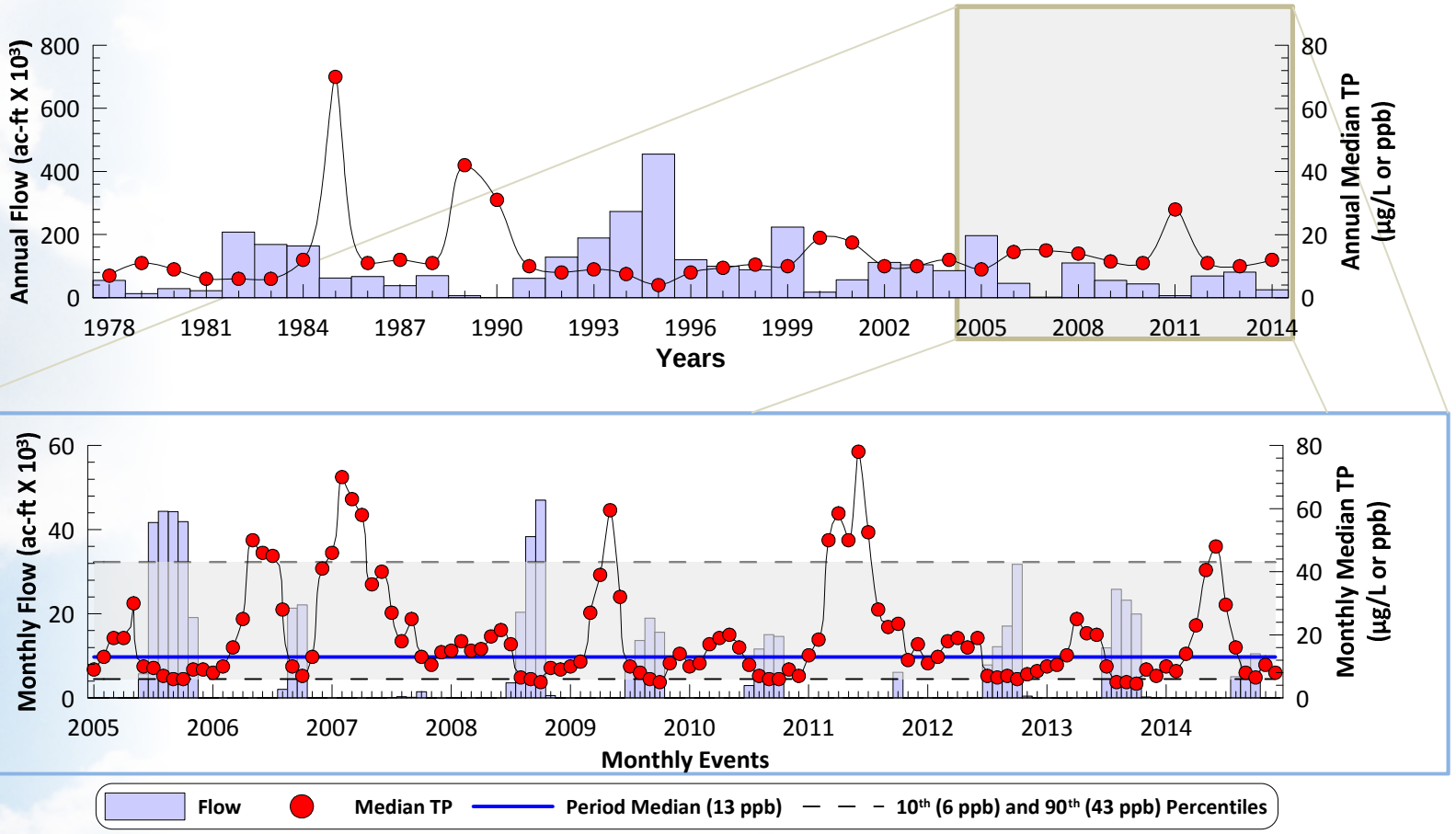




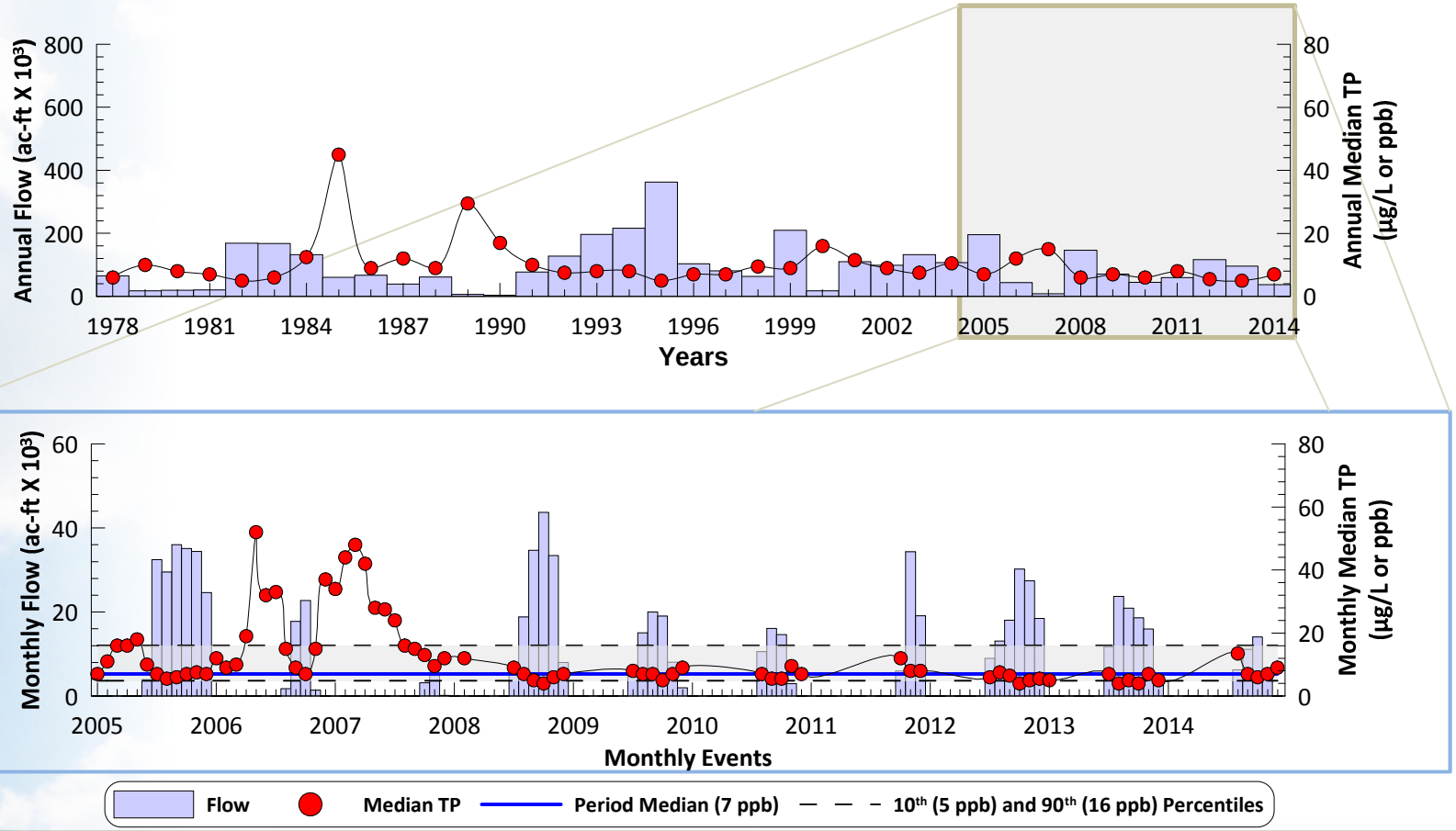


Flow | Median TP | Period Median (6 ppb) | 10th (5 ppb) and 90th (10 ppb) Percentiles

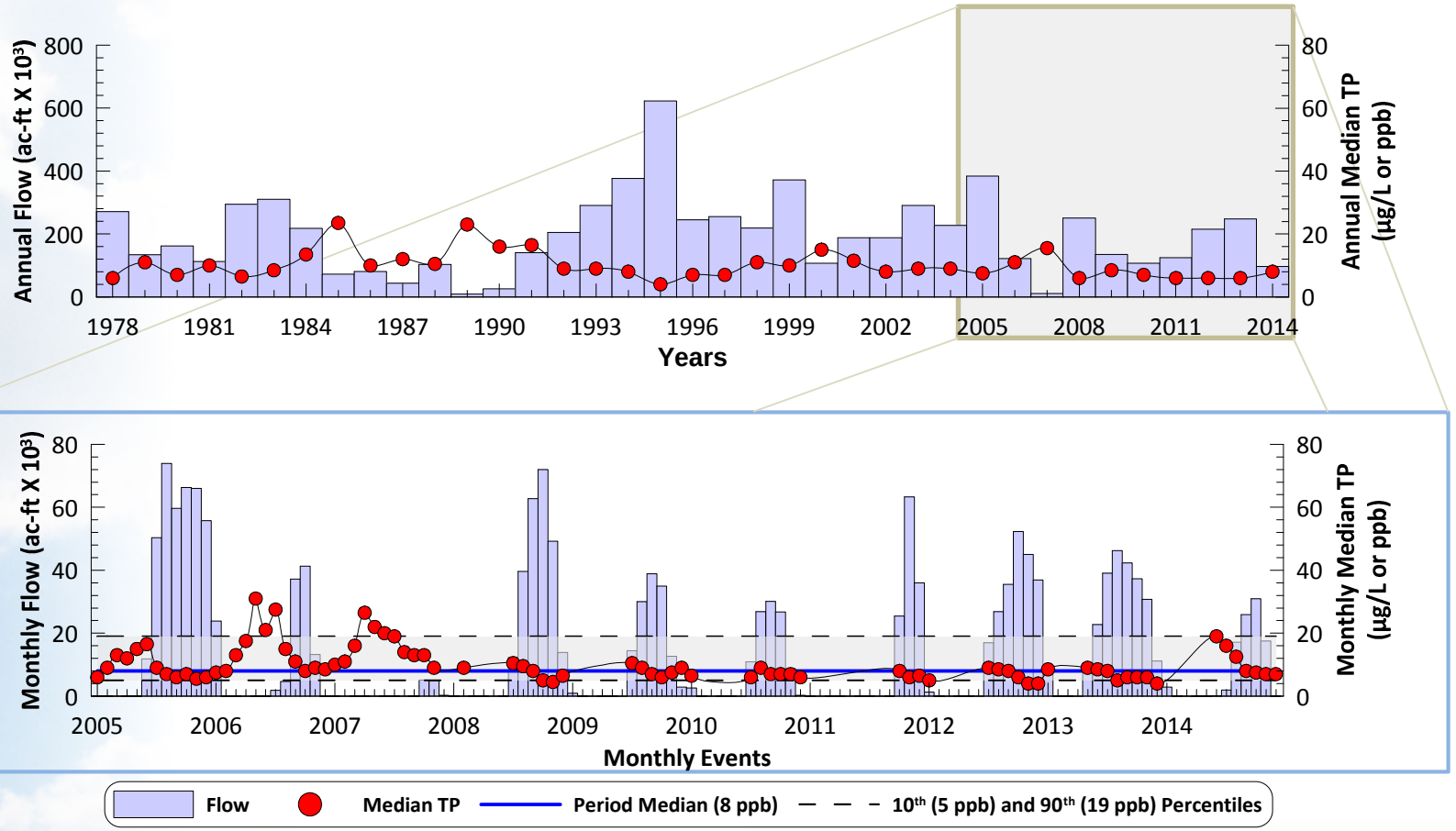
Total Phosphorus Trends: S12A



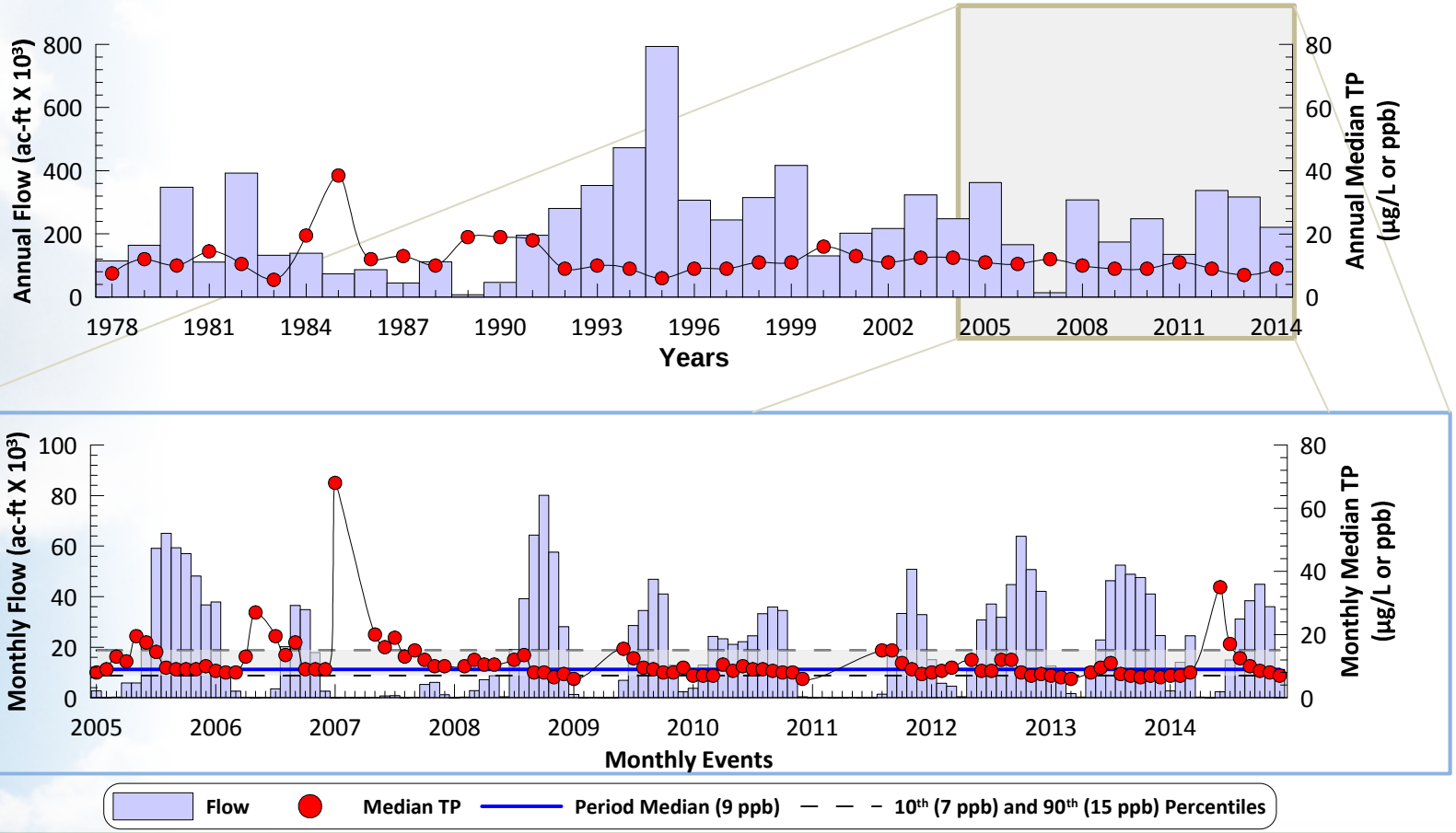
Total Phosphorus Trends: S12B



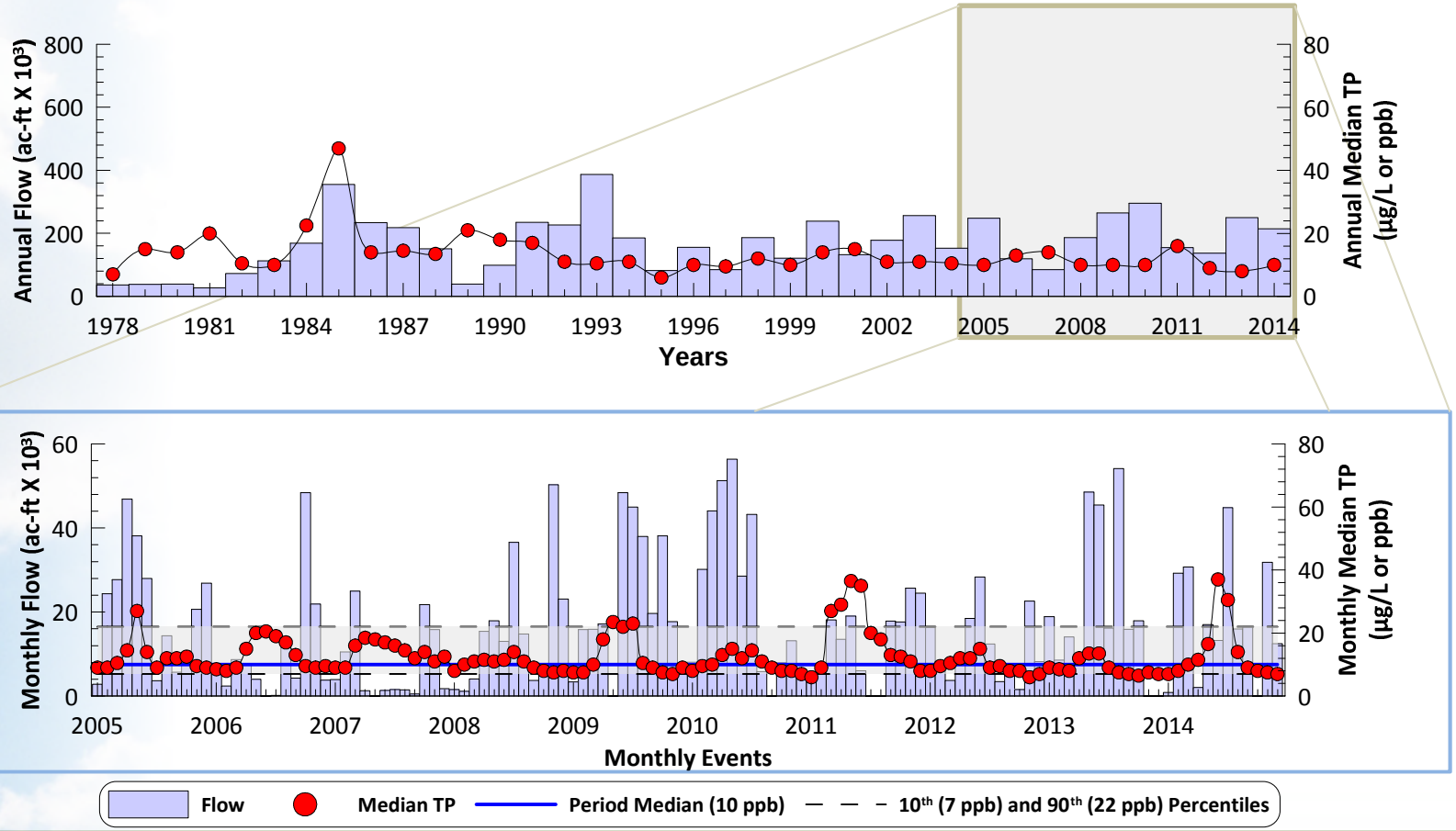
Total Phosphorus Trends: S12C



Total Phosphorus Trends: S12D



Total Phosphorus Trends: S333



C-111 Detention Areas: S-332B, S-332C, S-332D